

## 50 CFR Part 17

**Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for *Lysimachia asperulaefolia*****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Final rule.

**SUMMARY:** The Service determines *Lysimachia asperulaefolia* (rough-leaved loosestrife), a perennial herb limited to nine populations in North Carolina, to be an endangered species under the authority of the Endangered Species Act (Act) of 1973, as amended. *Lysimachia asperulaefolia* is endangered by suppression of fire, drainage activities associated with silviculture and agriculture, and residential and industrial development. This action will implement Federal protection provided by the Act for *Lysimachia asperulaefolia*.

**DATES:** The effective date of this rule is July 13, 1987.

**ADDRESSES:** The complete file for this rule is available for inspection, by appointment, during normal business hours at the Endangered Species Field Office, U.S. Fish and Wildlife Service, 100 Otis Street, Room 224, Asheville, North Carolina 28801.

**FOR FURTHER INFORMATION CONTACT:** Ms. Nora Murdock at the above address (704/259-0321; FTS 672-0321).

**SUPPLEMENTARY INFORMATION:****Background**

The taxonomic history of *Lysimachia asperulaefolia* (rough-leaved loosestrife) was summarized and clarified by Ray (1956) as follows: *Lysimachia asperulaefolia* was described as a new species by Jean Louis Marie Poiret in 1814. The material upon which he based this description was collected from North Carolina, but was mistakenly attributed to an Egyptian collection. In 1817, Stephen Elliott published a

description of conspecific material collected by Herbemont near Columbia, South Carolina, naming it *Lysimachia herbemonti*. The only other synonym for this species was *Trydinia herbemonti*, used by E.G. Steudel in his 1841 edition of *Nomenclator botanicus* (Ray 1956).

The slender stems of this perennial herb grow from a rhizome and reach heights of 3 to 6 decimeters (1 to 2 feet). Whorls, usually of three to four leaves, encircle the stem at intervals beneath the showy yellow flowers. Flowering occurs from mid-May through June, with fruits present from July through October (Kral 1983, Radford *et al.* 1968).

*Lysimachia asperulaefolia* is easily distinguished from the one other similar southeastern species of *Lysimachia*, *Lysimachia loomisii* Torrey, by its broader, glandular leaves and much larger flowers (Kral 1983).

*Lysimachia asperulaefolia* is a species endemic to the coastal plain and sandhills of North and South Carolina. It currently is known from nine locations in North Carolina and is believed extirpated from South Carolina. This species generally occurs in the ecotones or edges between longleaf pine uplands and pond pine pocosins [areas of dense shrub and vine growth usually on a wet, peaty, poorly drained soil (Barry 1980)], on moist to seasonally saturated sands and on shallow organic soils overlaying sand. The plant has also been found to occur on deep peat in the low shrub community of large Carolina bays [shallow, elliptical, poorly drained depressions of unknown origin (Mathews *et al.* 1980)]. The grass-shrub ecotone, where *Lysimachia asperulaefolia* is found, is fire-maintained, as are the adjacent plant communities (longleaf pine-scrub oak, savannah, flatwoods, and pocosin). Suppression of naturally occurring fire in these ecotones results in shrubs increasing in density and height and expanding to eliminate the open edges required by *Lysimachia asperulaefolia*. Drainage of these moist depressions in preparation for silvicultural or agricultural activities has also contributed to the decline of the species. Fire suppression, drainage, and, to a lesser extent, residential and industrial development have altered and eliminated habitat for this species and continue to be the most significant

threats to the species' continued existence (Carter 1985; Kral 1983).

Although intensive searches have been conducted in numerous areas of suitable habitat, a total of only 19 populations of *Lysimachia asperulaefolia* have been reported in North and South Carolina. Nine of these (all in North Carolina) remain in existence. The following is a summary of the most current information for this species:

**South Carolina:** According to Rayner (1985), *Lysimachia asperulaefolia* was collected at Columbia, Richland County, around 1817. Extensive development has occurred in this area and neither the habitat nor the species can now be found. Another site was recorded for the species in 1857 near Society Hill, Darlington County. At this location, the habitat currently remains essentially intact, but has not been allowed to burn for many years. Although these locations and other areas of suitable habitat were searched extensively by Rayner in 1984 and 1985, *Lysimachia asperulaefolia* was not found (Rayner 1985).

**North Carolina:** *Lysimachia asperulaefolia* has been reported from 17 sites in North Carolina. The species has been extirpated at eight of these localities. Three populations in Brunswick County, and one population each in Pender, Cumberland, Beaufort, Pamlico, and Onslow Counties, have succumbed to drainage associated with agricultural and silvicultural activities and residential development, as well as fire suppression (Carter 1985; J. Moore, North Carolina Natural Heritage Program, personal communication, 1985). A late-1800's record, from near Statesville in Iredell County, is now believed to have been a misidentification (R. Sutter, North Carolina Plant Protection Program, personal communication, 1985; J. Moore, personal communication, 1985). The distribution of the nine extant populations by county is as follows:

Two populations occur in Carteret County. One population occurs on U.S. Forest Service land. In 1983, a 200-acre tract of the Croatan National Forest, including part of the population of *Lysimachia asperulaefolia*, was designated for a county landfill site.

Some of the plants which existed on the edge of the proposed landfill were removed from the area. None of the transplanted individuals appear to have survived. Fortunately, some plants remain in a small area unimpacted by the landfill and appear to be doing well. The other colony in this population has experienced a 40 percent decline in numbers of stems since 1980.

Silvicultural site preparation of this area was followed by a short-term increase in the number of plants, after which the population declined steadily to fewer than had been found originally. A ditch put through the site for unknown purposes resulted in substantial drying of the habitat and has undoubtedly contributed to the decline of this colony (J. Moore, pers. comm. 1985; Carter 1985; J. Kraus, North Carolina Maritime Museum, pers. comm. 1986). The second population is on land administered by the U.S. Forest Service, and partly in private ownership. The privately owned portion of this population is on land that is currently for sale and being considered for municipal development (J. Moore, pers. comm. 1985). The entire population is potentially threatened by drainage and other intensive timber management activities, as well as by development.

Two populations occur in Scotland County. Both of these populations are located on land owned by the U.S. Department of Defense that is leased to and managed by the North Carolina Wildlife Resources Commission as part of the Sandhills Camelands. The first population consists of two very small colonies, covering a total area of less than 10 square meters (12 square yards). The plants here are rapidly being eliminated by shrub encroachment due to fire exclusion; conversion of uplands to pine plantation is also a threat at this site (Carter 1985). The second population is relatively large, but fire suppression has resulted in shrub encroachment; plants here are not thriving or reproducing well (Carter 1985).

Another population is located on the border of Cumberland and Bladen Counties. The population consists of two small colonies which cover a combined total area of less than 6 square meters (7.2 square yards). One colony is on land owned by the North Carolina Department of Natural Resources and Community Development, while the other is on land that is privately owned. The entire population is endangered by fire suppression (Carter 1985, F. Annand, North Carolina Nature Conservancy, pers. comm. 1985).

Two populations occur in Brunswick County. One population exists on land owned by The Nature Conservancy. It is being actively managed with prescribed fire, and is one of the most vigorous populations. However, intensive studies conducted on this population indicate that there is a high turnover in individual stems from year to year for reasons that are currently unknown (Sutter, pers. comm. 1985). The second population is located on land owned by the U.S. Department of Defense, Sunny Point Military Ocean Terminal. This population has benefited from a recently begun program of prescribed burning. However, drainage and conversion of pocosins to pine plantation is currently ongoing in other areas of the terminal and could eventually threaten the species here (Carter 1985).

One population occurs in Pender County on land owned in part by the North Carolina Wildlife Resources Commission and The Nature Conservancy. One private owner retains a small portion of this tract. This population is very small in terms of numbers and area covered, and is in serious need of fire. The remaining plants are not thriving or reproducing well due to severe shrub encroachment (Carter 1985, F. Annand, pers. comm. 1985).

The ninth population is located in Hoke County on land owned by the U.S. Department of Defense, Fort Bragg Military Reservation. This population is relatively vigorous (Carter 1985); however, it is endangered by fire suppression or long-rotation burning (greater than three years), timber harvesting activities, and possibly mechanized military training activities.

On December 15, 1980, the Service published a revised notice of review for native plants in the *Federal Register* (45 FR 82480); *Lysimachia asperulaefolia* was included in that notice as a category 1 species. Category 1 species are those for which the Service presently has sufficient information on hand to support the biological appropriateness of their being listed as endangered or threatened species. A revision of the 1980 notice that maintained *Lysimachia asperulaefolia* in category 1 was published on September 27, 1985 (50 FR 39526).

All plant taxa included in the 1980 notice, 1983 supplement, and the 1985 notice are treated as being under petition. Section 4(b)(3)(B) of the Endangered Species Act, as amended in 1982, requires the Service to make findings on pending petitions within 12-months of their receipt. On October 13, 1983, October 12, 1984, and October 11,

1985, the Service found that listing *Lysimachia asperulaefolia* was warranted, and that although proposal of other higher priority species had precluded its proposal, expeditious progress was being made to add other species to the list. The April 10, 1986, proposal of *Lysimachia asperulaefolia* to be endangered constituted the next 12-month finding for this species.

#### Summary of Comments and Recommendations

In the April 10, 1986, proposed rule (51 FR 12451) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices inviting public comment were published in the *Fayetteville Observer Times*, *Wilmington Star-News*, and *New Bern Sun Journal* on May 5, 1986, April 30, 1986, and May 5, 1986, respectively.

Eleven comments were received. Of these, eight respondents expressed support for the proposal, including the North Carolina Department of Agriculture, the U.S. Forest Service, the North Carolina Natural Heritage Program, the North Carolina Wildlife Resources Commission, the North Carolina Department of Natural Resources and Community Development, and the North Carolina and South Carolina offices of The Nature Conservancy. The U.S. Forest Service requested assistance in identifying necessary management activities; such assistance was provided during an onsite meeting on the Croatan National Forest. Three comments were received which offered no new information and did not state a position on the proposal. One of these latter three respondents, the Department of the Army, Military Ocean Terminal, Sunny Point, requested information which has been provided on specific locations of populations on that base.

#### Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Lysimachia asperulaefolia* should be classified as an endangered species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR Part 224) promulgated to implement the listing provisions of the Act were followed. A species may be determined

to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Lysimachia asperulaefolia* Poirét (rough-leaved loosestrife) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* *Lysimachia asperulaefolia* has been and continues to be endangered by destruction or adverse alteration of its habitat. Since discovery of the species, over 50 percent of the known populations have been extirpated, largely due to drainage and conversion of the habitat for silvicultural and agricultural purposes. Residential and industrial development has eliminated some habitat directly, and altered water regimes in adjacent areas to the point where the species can no longer survive. Fire suppression is a serious problem for this species and will be discussed in detail under factor "E" below. Of the ten populations that have been extirpated, four were eliminated by drainage and subsequent conversion to pine plantation or other intensive silvicultural practices, three disappeared due to fire suppression, two were eliminated by residential or industrial development, and one was lost when the area was drained and converted to agricultural use. At least seven of the remaining nine populations are currently threatened by habitat alteration. In addition to the major threats listed above, those populations on military installations are potentially threatened by mechanized military training activities. Although this has not been a documented problem for this species thus far, some of the small, fragile pocosins could easily be destroyed by heavy, tracked vehicles such as tanks. Nonetheless, populations probably persist on military bases, where they have not survived on adjacent privately owned land, because of the Defense Department's prescribed burning programs and periodic fires that are incidental to military training (J. Carter, North Carolina State University, pers. comm. 1985). Activities associated with intensive timber management on publicly owned land, such as timber harvesting, road building, and drainage, if done in a manner not consistent with the protection of *Lysimachia asperulaefolia* populations, could adversely affect the species, as has been the case on private lands in the past.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* *Lysimachia asperulaefolia* is not currently a significant component of the commercial trade in native plants; however, with its showy flowers, the

species has potential for horticultural use, and publicity could generate an increased demand.

C. *Disease or predation.* Not applicable to this species at this time.

D. *The inadequacy of existing regulatory mechanisms.* *Lysimachia asperulaefolia* is afforded legal protection in North Carolina by North Carolina General Statutes, §§ 106-202.12 to 106-202.19 (Cum. Supp. 1985), which provides for protection from intrastate trade (without a permit) and for monitoring and management of State-listed species and prohibits taking of protected plants without written permission of the landowners. *Lysimachia asperulaefolia* is listed in North Carolina as endangered. State prohibitions against taking are difficult to enforce and do not cover adverse alterations of habitat, such as disruption of drainage patterns and water tables, or exclusion of fire. The species is recognized in South Carolina as endangered and of national concern by the South Carolina Advisory Committee on Rare, Threatened, and Endangered Plants in South Carolina; however, this State offers no official protection. Section 404 of the Clean Water Act could potentially provide some protection for the habitat of *Lysimachia asperulaefolia*; however, many of the sites where it occurs may not meet the wetlands criteria. The Endangered Species Act would provide additional protection and encouragement of active management for *Lysimachia asperulaefolia*.

E. *Other natural or manmade factors affecting its continued existence.* As mentioned in the "Background" section of this proposed rule, many of the remaining populations are small in numbers of individual stems and in terms of area covered by the plants. In addition, the rhizomatous nature of the species indicates that there are many fewer individual plants in existence than stem counts would indicate, with as many as 50 or more stems arising from a single rhizome or plant (R. Sutter, pers. comm. 1985). The lower genetic variability in this species makes it more important to maintain as much habitat and as many of the remaining colonies as possible. In addition, intensive studies have revealed that there is a high turnover in individual stems from year to year; for instance, of 50 individuals marked in 1983 and subsequently monitored, only 8 remained by 1985 (R. Sutter, pers. comm. 1985). Although the species seems to have high seed viability and good seed set, in 1985 less than 3 percent of the plants in all populations flowered

(Carter 1985, R. Sutter, pers. comm. 1985, J. Moore, pers. comm. 1985, Moloney 1985). Much remains unknown about the demographics and reproductive requirements of this species. Fire is essential to maintaining the grass-shrub ecotone where *Lysimachia asperulaefolia* occurs. Without periodic fire, this ecotone is gradually overtaken and eliminated by the shrubs of the adjacent pocosins. As the shrubs increase in height and density, they overtop the *Lysimachia asperulaefolia*, which is shade-intolerant. The current distribution of this species is ample evidence of its dependence on fire. Of the nine remaining populations, seven are completely on publicly owned lands or lands owned by The Nature Conservancy that are actively managed with prescribed fire or exposed to naturally occurring periodic fires. The two sites which are partially in private ownership are either exposed to periodic fire or adjacent to areas which are regularly burned. Populations in areas which have not been recently burned tend not to be thriving or reproducing.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list *Lysimachia asperulaefolia* as endangered. With more than 50 percent of the species' populations having already been eliminated and only nine remaining in existence, it warrants protection under the Act. Endangered status is considered appropriate because of the imminent and serious threats facing most populations. Critical habitat is not being designated for the reasons discussed below.

#### Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for *Lysimachia asperulaefolia* at this time. With its showy flowers, the species has potential for horticultural use. Increased publicity and the provision of specific location information associated with critical habitat designation could result in collecting pressures on the species. Although removal and reduction to possession of endangered plants from lands under Federal jurisdiction are prohibited by the Endangered Species

Act, such provisions are difficult to enforce. Publication of critical habitat descriptions would make *Lysimachia asperulaefolia* more vulnerable and would increase enforcement problems for the U.S. Forest Service and the Department of Defense. The populations on private lands would be vulnerable to collection. Increased visits to population locations stimulated by critical habitat designation could therefore adversely affect the species. The Federal and State agencies and landowners involved in managing the habitat of this species have been informed of the plant's locations and of the importance of protection; therefore, no additional notification benefits would accrue from designating critical habitat. Protection of the species' habitat will be addressed through the recovery process and through the section 7 jeopardy standard.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against collection are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402 (see revision at 51 FR 19926; June 3, 1986). Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of an endangered or threatened species or to destroy or adversely modify its critical habitat. Generally, if a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

The U.S. Forest Service and the U.S. Department of Defense have jurisdiction

over portions of this species' habitat. Federal activities that could impact *Lysimachia asperulaefolia* and its habitat in the future include, but are not limited to, the following: silvicultural activities, including timber harvesting and conversion of sites to pine plantations by means of drainage and mechanical site preparation; mechanized military training operations; recreational development; drainage alterations; road construction; and implementation of timber harvest portions of forest management plans. The Service will work with the involved agencies to secure protection and proper management of *Lysimachia asperulaefolia* while accommodating agency activities to the extent possible.

The Act and its implementing regulations found at 50 CFR 17.61 and 17.62 set forth a series of general trade prohibitions and exceptions that apply to all endangered plant species. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export any endangered plant, transport it in interstate or foreign commerce in the course of a commercial activity, sell or offer it for sale in interstate or foreign commerce, or remove it from areas under Federal jurisdiction and reduce it to possession. Certain exceptions can apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered plant species under certain circumstances. It is anticipated that few trade permits would ever be sought or issued since *Lysimachia asperulaefolia* is not common in cultivation or in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Federal Wildlife Permit Office, U.S. Fish and Wildlife Service, Washington, DC 20240 (703/235-1903).

#### National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the *Federal Register* on October 25, 1983 (48 FR 49244).

#### References Cited

- Barry, J.M. 1980. Natural Vegetation of South Carolina. University of South Carolina Press, Columbia. 214 pp.
- Carter, J.H., III. 1985. Rough-leaved Loosetrife in North Carolina. Status Survey Report Submitted to North Carolina Department of Agriculture. 4 pp.
- Kral, R. 1983. A Report on Some Rare, Threatened, or Endangered Forest-related Vascular Plants of the South. U.S. Forest Service Tech. Pub. R8-TP2. 1,305 pp.
- Mathews, T.D., F.W. Stapor, Jr., C.R. Richter, J.W. Miglarese, M.D. McKenzie, and L.A. Barclay, eds. 1980. Ecological Characterization of the Sea Island Coastal Region of South Carolina and Georgia. U.S. Fish and Wildlife Service, FWS/OBS-79/40. Vol. 1. 212 pp.
- Moloney, K. 1985. Preliminary Report on the 1985 Census of *Lysimachia asperulaefolia* in the Green Swamp of North Carolina. Report to the North Carolina Department of Agriculture. 15 pp.
- Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. UNC Press, Chapel Hill. 1,183 pp.
- Ray, J.D. 1956. The genus *Lysimachia* in the New World. Illustrated Biological Monographs 24:1-68.
- Rayner, D.A. 1985. Letter to Robert Sutter. North Carolina Department of Agriculture, regarding the status of *Lysimachia asperulaefolia* in South Carolina.

#### Author

The primary author of this final rule is Ms. Nora Murdock, Endangered Species Field Office, U.S. Fish and Wildlife Service, 100 Otis Street, Room 224, Asheville, North Carolina 28801 (704/259-0321 or FTS 672-0321).

#### List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

#### Regulation Promulgation

#### PART 17—[AMENDED]

Accordingly, Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for Part 17 continues to read as follows:

**Authority:** Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. Amend § 17.12(h) by adding the following, in alphabetical order under the family Primulaceae, to the List of Endangered and Threatened Plants:

#### § 17.12 Endangered and threatened plants.

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(h) \* \* \*

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
PRIMULACEAE—Primrose family: <i>Lysimachia asperulaefolia</i>	Rough-leaved loosestrife	U.S.A. (NC, SC)	E	274	NA	NA

Dated: May 27, 1987.

Susan Recce,

Acting Assistant Secretary for Fish and  
Wildlife and Parks.

[FR Doc. 87-13328 Filed 6-11-87; 8:45 am]

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